

# Certificate of Calibration



Keysight Calibration

Certificate Number 1-XXXXXXXXXX1

**Model Number** U1610A  
**Manufacturer** Keysight Technologies Inc  
**Description** Handheld Digital Oscilloscope, 100MHz  
**Serial Number** XXXXXXXXXX

**Customer**

XXXXXXXXXX  
XXXXXXXXXX  
XXXXXXXXXX

**Date of Calibration** 2 Feb 2016  
**Procedure** EMU-50133823-A.00.04  
**Temperature** (23 ± 5) °C  
**Humidity** (50 ± 30) %RH

**Location of Calibration**

Keysight Technologies  
Deutschland GmbH  
Herrenberger Strasse 130  
D-71034 Boeblingen  
Germany

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures in compliance with a quality management system registered to ISO 9001:2015.

## As Received Conditions

The measured values of the equipment were observed in specification at the points tested.

## Action Taken

- No corrective actions were necessary.

## As Completed Conditions

The measured values of the equipment were observed in specification at the points tested.

A team of engineers and metrologists develops performance tests procedures and selects specific instruments considering the uncertainty of measurement. In this report, conformance statements of "Passed" or "Failed" are determined by simple comparison of observed measurements to the warranted specifications.

## Remarks or Special Requirements

This calibration certificate may refer to instruments manufactured by HP, Agilent and Keysight as being manufactured by Keysight Technologies, Inc.

The test limits stated in the report correspond to the published specifications of the equipment, at the points tested.

Keysight Technologies  
Deutschland GmbH  
Herrenberger Strasse 130  
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Edgar Leckel - European Operations Manager

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## Traceability Information

Technician ID Number ██████████

Measurements are traceable to the International System of Units (SI) via national metrology institutes ([www.keysight.com/find/NMI](http://www.keysight.com/find/NMI)) that are signatories to the CIPM Mutual Recognition Arrangement.

This certificate shall not be reproduced, except in full, without prior written approval of the laboratory.

## Calibration Equipment Used

<u>Model Number</u>	<u>Model Description</u>	<u>Equipment ID</u>	<u>Cal Due Date</u>	<u>Certificate Number</u>
5520A	Multi-Product Calibrator	DE2768	2 Jul 2016	██████████

## Measurement Report

Keysight Technologies Deutschland GmbH  
Herrenberger Strasse 130  
71034 Boeblingen  
Germany

**Report Number:** 1-██████████-1  
**Model Number:** U1610A

**Customer:** See Certificate  
**Serial Number:** ██████████

**Test Date:** 2 Feb 2016  
**Temperature:** 23+/-5 °C

**Tested By:** ██████████  
**Humidity:** 50+/-30 %

**Results:** As Received (Pre-repair/Adjustment) Data

**Part Number:** 5013-3823  
**Version:** A.00.04  
**Executive Version:** A.02.56

**Traceability Information is on the Certificate**

Report Number :1-XXXXXXXXXX-1  
Model Number :U1610A  
Serial Number :XXXXXXXXXX

Test Date :2 Feb 2016

**PERFORMANCE TEST RESULTS SUMMARY**

<b>TEST NAME</b>	<b>STATUS</b>
Voltage Measurement Accuracy	Passed
Bandwidth	Passed
Multimeter Performance Verification Test	Passed
AC Voltage Verification Test	Passed
Resistance Verification Test (2-Wire Ohms)	Passed
Capacitance Verification Test	Passed

Report Number :1-XXXXXXXXXX-1  
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Test Date :2 Feb 2016

**Voltage Measurement Accuracy**

**Passed**

Channel = 1

<u>Volt/div</u>	<u>Calibrator Setting</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
50 V/div	175 V	157.40 V	172.92 V	192.60 V	Passed
50 V/div	-175 V	-192.60 V	-173.96 V	-157.40 V	Passed
20 V/div	140 V	132.96 V	138.33 V	147.04 V	Passed
10 V/div	70 V	66.48 V	69.38 V	73.52 V	Passed
5 V/div	35 V	33.24 V	34.58 V	36.76 V	Passed
2 V/div	14 V	13.30 V	13.92 V	14.70 V	Passed
1 V/div	7 V	6.65 V	6.92 V	7.35 V	Passed
0.5 V/div	3.5 V	3.32 V	3.46 V	3.68 V	Passed
0.2 V/div	1.4 V	1.33 V	1.38 V	1.47 V	Passed
100 mV/div	700 mV	664.80 mV	691.67 mV	735.20 mV	Passed
50 mV/div	350 mV	332.40 mV	345.83 mV	367.60 mV	Passed
20 mV/div	140 mV	132.96 mV	138.75 mV	147.04 mV	Passed
10 mV/div	70 mV	66.48 mV	69.17 mV	73.52 mV	Passed
5 mV/div	35 mV	33.24 mV	34.58 mV	36.76 mV	Passed
2 mV/div	14 mV	13.30 mV	13.67 mV	14.70 mV	Passed

Channel = 2

<u>Volt/div</u>	<u>Calibrator Setting</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
50 V/div	175 V	157.40 V	172.92 V	192.60 V	Passed
50 V/div	-175 V	-192.60 V	-172.92 V	-157.40 V	Passed
20 V/div	140 V	132.96 V	138.33 V	147.04 V	Passed
10 V/div	70 V	66.48 V	69.17 V	73.52 V	Passed
5 V/div	35 V	33.24 V	34.58 V	36.76 V	Passed
2 V/div	14 V	13.30 V	13.88 V	14.70 V	Passed
1 V/div	7 V	6.65 V	6.90 V	7.35 V	Passed
0.5 V/div	3.5 V	3.32 V	3.46 V	3.68 V	Passed
0.2 V/div	1.4 V	1.33 V	1.38 V	1.47 V	Passed
100 mV/div	700 mV	664.80 mV	693.75 mV	735.20 mV	Passed
50 mV/div	350 mV	332.40 mV	344.79 mV	367.60 mV	Passed
20 mV/div	140 mV	132.96 mV	137.50 mV	147.04 mV	Passed
10 mV/div	70 mV	66.48 mV	69.17 mV	73.52 mV	Passed
5 mV/div	35 mV	33.24 mV	33.96 mV	36.76 mV	Passed
2 mV/div	14 mV	13.30 mV	13.50 mV	14.70 mV	Passed

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**Bandwidth**

**Passed**

<u>Channel</u>	<u>Frequency</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
Channel 1	100 MHz	-3 dB	2.11 dB	3 dB	Passed
Channel 2	100 MHz	-3 dB	2.08 dB	3 dB	Passed

**Multimeter Performance Verification Test**

**Passed**

DC Voltage Verification Test

<u>Calibrator Voltage</u>	<u>Range</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
100 mV	100 mV	99.5 mV	99.97 mV	100.5 mV	Passed
1 V	1 V	0.9986 V	0.9997 V	1.0014 V	Passed
10 V	10 V	9.989 V	9.997 V	10.011 V	Passed
100 V	100 V	99.89 V	99.95 V	100.11 V	Passed
1000 V	1000 V	998.0 V	999.6 V	1002.0 V	Passed

**AC Voltage Verification Test**

**Passed**

<u>Calibrator Voltage</u>	<u>Range</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
100 mV at 45 Hz	100 mV	98.95 mV	99.95 mV	101.05 mV	Passed
100 mV at 500 Hz	100 mV	98.95 mV	99.99 mV	101.05 mV	Passed
100 mV at 1 kHz	100 mV	98.95 mV	99.99 mV	101.05 mV	Passed
100 mV at 2 kHz	100 mV	98.95 mV	99.98 mV	101.05 mV	Passed
1 V at 45 Hz	1 V	0.9895 V	0.9996 V	1.0105 V	Passed
1V at 500 Hz	1 V	0.9795 V	1.0010 V	1.0205 V	Passed
1V at 1 kHz	1 V	0.9795 V	1.0029 V	1.0205 V	Passed
10V at 45 Hz	10 V	9.895 V	9.995 V	10.105 V	Passed
10V at 500 Hz	10 V	9.895 V	10.046 V	10.105 V	Passed
10V at 1 kHz	10 V	9.795 V	10.004 V	10.205 V	Passed
10V at 2 kHz	10 V	9.795 V	10.002 V	10.205 V	Passed
100V at 45 Hz	100 V	98.95 V	99.95 V	101.05 V	Passed
100V at 500 Hz	100 V	98.95 V	100.49 V	101.05 V	Passed
100V at 1 kHz	100 V	97.95 V	100.42 V	102.05 V	Passed
100V at 2 kHz	100 V	97.95 V	101.41 V	102.05 V	Passed
1000V at 45 Hz	1000 V	989.5 V	999.5 V	1010.5 V	Passed
1000V at 500 Hz	1000 V	989.5 V	1000.3 V	1010.5 V	Passed
1000V at 1 kHz	1000 V	989.5 V	1004.9 V	1010.5 V	Passed

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**Resistance Verification Test (2-Wire Ohms)**

**Passed**

<u>Calibrator Settings</u>	<u>Range</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
1000 ohm	1000 ohm	996.7 ohm	1000 ohm	1003.3 ohm	Passed
10 kohm	10 kohm	9.967 kohm	10.000 kohm	10.033 kohm	Passed
100 kohm	100 kohm	99.67 kohm	100.03 kohm	100.33 kohm	Passed
1 Mohm	1 Mohm	0.9967 Mohm	1.000 Mohm	1.0033 Mohm	Passed
10 Mohm	10 Mohm	9.917 Mohm	9.993 Mohm	10.083 Mohm	Passed
100 Mohm	100 Mohm	98.47 Mohm	99.51 Mohm	101.53 Mohm	Passed

**Capacitance Verification Test**

**Passed**

<u>Calibrator Settings</u>	<u>Range</u>	<u>Lower Limit</u>	<u>Measured Value</u>	<u>Upper Limit</u>	
1000 nF	1000 nF	987.6 nF	1000 nF	1012.4 nF	Passed
10 µF	10 µF	9.876 µF	9.991 µF	10.124 µF	Passed
100 µF	100 µF	98.76 µF	100.0 µF	101.24 µF	Passed
1000 µF	1000 µF	979.6 µF	998.3 µF	1020.4 µF	Passed
10 mF	10 mF	9.796 mF	9.982 mF	10.204 mF	Passed